MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Areas: Beaufort Sea, Chukchi Sea

Title: King and Common Eider Migrations Past Point Barrow (AK-93-48-44)

MMS Information Needs to be Addressed: MMS will use the data on king and common eider distribution and abundance from this study, and related studies mentioned above, to model the effect of various oil spill scenarios on the Beaufort Sea eider population. MMS will use information on basic natural history and ecology to improve assessments of potential impacts of oil development and, potentially, to develop mitigation measures for future OCS, and supporting onshore, development. MMS will use information from this study for NEPA analysis and documentation for Beaufort Sea Lease Sales, exploration plan reviews, and DPPs.

Total Cost: $231,000 **Period of Performance:** FY 2002-2007

Conducting Organization: CMI, UAF

MMS Contact: Chief, Alaska Environmental Studies Section

Description:

Background King (*Somateria spectabilis*) and common eiders (*S. mollissima v-nigra*) are an important resource for Native people in northern Alaska and Canada. Residents of Barrow harvest more king and common eiders than any other species of waterfowl (Fuller and George 1977). Most individuals of both species nesting in Alaska and Canada pass very close to shore at point Barrow, Alaska, twice annually – during their northward, spring migration and their southward, fall migration. Based on previous surveys conducted at Barrow from 1953 to the present, NSB scientists in 2000 argued that the king eider population appeared to have relatively constant numbers between 1953 and 1976, but may have declined by about 53% between 1976 and 1996. Those authors also argued that the common eider population may have declined by a similar magnitude (56%) during the same period.

Although eider surveys have been conducted periodically at Pt. Barrow since 1953, a comprehensive survey was last completed in 1996. This study will support a repeat of the previous surveys, using the same location, methods and some of the same observers that participated during 1996. This effort will expand the existing synthesis of eider migration data compiled in the earlier publication by NSB scientists in 2000 and should lead to a better understanding of the timing of migrations and use of the Alaskan Beaufort Sea OCS and coastal environments by the subject species. This study also is synergistic with three other ongoing MMS studies - two that address habitat use and movements of king eiders and a third that is developing recovery models for these and related species.

Objectives

1. Estimate the number of king and common eiders passing by Point Barrow in spring and fall 2003-2004 and compare with counts made in 1996.
2. Estimate the sex ratios of king and common eiders passing by Point Barrow in spring 2003 and 2004.
3. Estimate the timing and sex/age composition of king and common eiders leaving the Beaufort Sea in the summer of 2003 and 2004.
4. Investigate possible correlation among weather conditions and high passage rates of eiders within each migration.

Methods Investigators will follow the same methodology as was used in previous surveys at the same site.

1. Count eiders from the base of the Point Barrow spit between approximately 10 September and 30 October using one to three observers.
2. Make counts up to 10 hours each day in September, but limit to 2 hours per day by October as day length decreases.
3. Collect data on weather conditions (temperature, wind speed, wind direction, cloud cover, and visibility). For each flock sighted, record: time, direction of travel, species composition, number sighted, ratio of males to females for each species, and other comments on behavior.
4. Collect data from subsistence hunters regarding species, sex, and age composition, status of molt of late summer flocks.
5. Analyze data following previous methods in a study by NSB scientists in 2000.

Current Status: Awaiting revised final report from UAF, CMI

Final Report Due: TBD

Publications: None

Presentations

Knoche, M. J. 2003. The Biology of King Eiders: What can their feathers tell us? Barrow Arctic Science Consortium, National Science Foundation, Schoolyard Project, 16 August. Ukpeagvik Inupiat Corporation Science Center, Barrow, AK.

Knoche, M. J. 2003. Isotopes and King and Common Eider Migrations past Point Barrow. Alaska Bird Observatory, November 2003. Fairbanks, AK.

Knoche, M. J. 2004. Isotopes and King and Common Eider Migrations past Point Barrow. Annual presentation to CMI, February. Fairbanks, AK.

Quakenbush, L. 2004. King and Common Eider migrations past Point Barrow, Alaska. Annual presentation to CMI, February. Fairbanks, AK.

Knoche, M. J. 2004. King eider molting ecology using stable isotope analyses. Alaska Cooperative Fish and Wildlife Research Unit review, February. Fairbanks, AK.

Quakenbush, L. 2005. King and Common Eider migrations past Point Barrow, Alaska. Annual presentation to CMI, March. Fairbanks, AK.

Suydam, R. 2005. Status of King and Common Eiders migrating past Point Barrow, Alaska. 10th Information Transfer Meeting, Minerals Management Service, 14–16 March 2005, Anchorage, AK.

Manuscripts

Knoche, M. J., A. N. Powell, L. M. Phillips, L. Quakenbush, and M. Wooller. (*In review*). Further evidence of fidelity to molt site locations by King Eiders: Combining stable isotope analyses and satellite telemetry. Waterbirds.

Knoche, M. J., K. A. Hobson, A. N. Powell, L. T. Quakenbush, and M. J. Wooller. (*In progress*). Isotopic evidence for variable wing molt locations in North American King Eiders. Arctic.

Affiliated WWW Sites: http://www.mms.gov/alaska/

Revised Date: March 2008